No. 9058

In the United States
Circuit Court of Appeals
For the Ninth Circuit.

RESEARCH PRODUCTS CO., LTD., a corporation, CALIFORNIA PRODUCTION CO., a corporation, HENRY BRANHAM, ARTHUR J. DIETRICK and ABRAHAM M. HERBSMAN,

Appellants and Defendants,

vs.

THE TRETOLITE COMPANY, a corporation and TRETOLITE COMPANY OF CALIFORNIA, LTD., a corporation,

Appellees and Plaintiffs.

BRIEF FOR APPELLEES.

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BRIEF FOR APPELLEES.

This is an appeal by defendants below from a decree entered in the Southern District of California sustaining Letters Patent No. 1,467,831 owned by appellees and granting the usual relief for infringement thereof. The patent is entitled "Process for Treating Petroleum Emulsions" and was granted to cover the discovery made by William S. Barnickel of St. Louis, Missouri, of the ability of certain chemicals to break crude oil emulsions much more effectively than anything theretofore known in the art.

The case was tried before a special master (David B. Head, Esq.), who filed an exhaustive report setting forth his findings of fact and conclusions of law [I. 128-153].* Defendants filed numerous exceptions to the master's report [I. 155-170] and these were argued orally to the Court and submitted on briefs. The exceptions to the master's report were overruled by the Court (Judge Hollzer) in a written Memorandum of Conclusions [I. 171-177] and after the entry of separate Findings of Fact and Conclusions of Law [I. 178-185] pursuant to former *Equity Rule 70½* the Court made the decree [I. 186-190] from which defendants appeal.

Appellants' brief** presents no principal defense in this case. Whatever has occurred to appellants' counsel has apparently been presented without special regard to whether it may be good or bad. It is asserted, *1st,* that the master and court below were wrong in sustaining the validity of the patent (Appellants' Brief, pp. 10-47); *2nd,* that appellants have not infringed the patent irrespective of its validity (*Id.,* pp. 48-65); and, finally, that no relief should be granted appellees even though the patent be valid and infringed because it is contended that appellees have made an illegal use of the patent (*Id.,* pp. 65-79). The success of any one of these propositions depends upon

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*The record [in four volumes] will be referred to by giving the volume in Roman numerals followed by the pages in Arabic numerals.

**Appellants' brief does not comply with the rules of this Court. Appellants have not complied with former rule 24(d) of this Court requiring them to identify the assignment of error relied upon preceding the argument addressed to it nor with the requirements of present rule 24(d) of this Court (effective Dec. 19, 1938) requiring that in alleging error in the ruling upon the report of the master, they "state the exception to the report and the action of the court upon such exception."

the existence of the facts required to support the proposition. It has been found below that no such facts exist.

Appellants badly misconceive the burden faced by them on this appeal. They seem content to rely upon such of the evidence as they deem favorable to themselves, ignoring any conflicting evidence no matter how overwhelming, and disregarding entirely the effect of the findings made in the court below. This does not comply with the repeated holdings of this Court that the findings of the master, when approved by the trial court, are entitled to great weight (*Waxham v. Smith,* 70 F. (2d) 457; *Anraku v. General Electric Co.,* 80 F. (2d) 958) and that this Court will not weigh the evidence where there is substantial evidence to support the findings (*Stoody Co. v. Mills Alloys,* 67 F. (2d) 807. In accord with the new *Rules of Civil Procedure* the master's findings of fact must be accepted "unless clearly erroneous" [rule 53(e2)] and these findings shall not be set aside upon appeal unless clearly wrong [rule 52(a)]. Appellants' brief cannot and does not purport to sustain this burden.

The patent lies in a complex field of organic chemistry. The consideration of the evidence determinative of the issues of validity and infringement requires an understanding of that chemistry. It is not true, as stated in appellants' brief (p. 6) that the questions involved may be determined "by application of laws of merely elementary chemistry or by simple reasoning." The facts must be understood and they are complex chemical facts. In view of his technical training and experience the subject pre-

sented no difficulty to the special master. The District Judge before proceeding with the oral argument on the exceptions to the master's report and after having read the briefs suggested that the court required the aid of a technical advisor, saying:—

> "The exhibits offered on behalf of respective litigants are not only quite considerable in number but primarily involve highly technical matters dealing with some feature of chemistry; and, of course, the Special Master's report indicates very clearly that he was called upon to analyze and pass judgment upon the reasoning and the theories expounded by these technical experts, as well as to construe exhibits involving the same matters.
>
> "Personally, I would feel that a court is more apt to reach an intelligent and just and correct result in this case if it had the assistance of a disinterested qualified expert."
>
> [III. 1210: See also III. 1219-20.]

Accordingly with the consent of the parties Dr. Beckman of the California Institute of Technology sat with the court at the hearing on the exceptions to the master's report [III. 1225]. In the following discussion of the issues raised in appellants' brief we shall show that each of such issues is determined by the existence of one or more facts, that such facts have in each instance been established in favor of appellees, and that there is ample evidence to support these findings as made below. Before proceeding to a discussion of the issues we shall explain the patent in suit and the invention covered thereby, something entirely lacking in appellants' brief.

The Patented Invention.

The patent in suit relates to a peculiar art, namely, the separation of crude oil emulsions into oil and water by the use of a relatively small quantity of a chemical. Much of the crude oil as produced contains water emulsified in the oil. The water is suspended in the oil in the form of fine droplets. These droplets are surrounded by films which prevent their coalescing so as to settle by gravity from the oil. To break the emulsion it is necessary to overcome or destroy these protective films. Crude oil containing emulsified water is not merchantable.

The problem of breaking crude oil emulsions has been one of long standing. It has been attacked electrically, mechanically and chemically. Two methods have succeeded and these are best adapted to different types of oils. High voltage electric currents have been and are used with success on some oils, particularly many of the kind produced in California. The basic Cottrell patent covering this electrical method was sustained by this Court (*Petroleum Rectifying Co. v. Reward Oil Co.,* 260 F. 177). The use of relatively small quantities of chemical is the method pioneered by Barnickel.

The history of Barnickel's work on this subject is given in the testimony of J. S. Lehmann, the president of The Tretolite Company, who was called as a witness by the defendants [II. 598-610]. Barnickel was a chemist living in St. Louis, where he worked for a drug firm on a small salary. In 1907 he visited an oil field in Oklahoma and first learned of the immense waste of emulsified oils which was occurring. The condition there was common throughout the oil fields of this country.–

> "As one man confidently put it, 'more waste oil was run down the creeks from the famous Glen Pool than was ever produced in Illinois.' "
>
> (Bureau of Mines Bulletin (1913), Technical Paper #45, p. 23.)

It occurred to Barnickel that there must be some chemical method by which this oil could be conserved. He secured samples of the oil field emulsions and tested these with various chemicals in a small laboratory which he fitted up in the basement of his home. Barnickel had his first success with the use of sulfate of iron (copperas). He was able successfully to break large quantities of roily oil from the Harrel well in northern Louisiana using this chemical. Barnickel's first patent, No. 1,093,098, was issued on April 14, 1914, to cover the use of this chemical [Exhibit W-1—IV. 433]. This patent is referred to as the sulfate patent, and is not involved in this suit.

Barnickel soon learned that copperas could be successfully used on but few emulsions. Attempts to use copperas on roily oil from Texas and Oklahoma failed. Barnickel and Lehmann were greatly disappointed. Early in the spring of 1913 Barnickel told Lehmann that he had made a new discovery. This was that ordinary water softeners of the type used to precipitate hardness from water, such as soda ash and sodium oleate (common soap), would successfully treat many of the emulsions which could not be treated with copperas. A contract was made with the Mt. Vernon Oil Company and in the spring of 1914 Barnickel successfully treated a considerable quantity of roily oil at Tanaha, Oklahoma, using sodium oleate as the chemical. A second patent, No. 1,223,659, issued April 24, 1917, was secured to cover the use of ordinary water softeners [Exhibit 1—IV. 1]. This patent was sustained and held infringed by the Circuit Court of Appeals for the Eighth Circuit in the case of *Producers & Refiners Corp. v. Lehmann,* 18 Fed. (2d) 492, the Court construing the patent as follows:—

> "The use of water softening agents for breaking up roily oils and recovering the oil contained as a commercial product is the process covered by patent 1,223,659, the patent found infringed."
>
> (18 F. (2d) 492, at 494.)

Prior to the filing of the instant suit analyses were made of the chemical employed by the defendants and these analyses showed that the chemical used by the defendants is a water softening agent. Accordingly the water softener patent, No. 1,223,659, was included in this suit. At the trial it developed and the master found that the defendants' chemical has water softening qualities but not of sufficient extent when used in the small quantities employed in treating the crude oil emulsions to have any appreciable water softening action. Accordingly the master though upholding the validity of the water softener patent found that the same was not infringed [I. 149-50]. Since the water softener patent expired before the case could be heard in the District Court, appellees took no exception to the finding of the master and the infringement of that patent is no longer an issue in this case.

Following his discovery of his water softener process Barnickel engaged in the business of commercializing that process and obtained a limited measure of success. However, it developed that there were serious limitations with that process which prevented its widespread adoption. Many crude oil emulsions were encountered which could not be broken at all with a simple water softener [II. 501, 519]. A complete breaking of any emulsion was rarely obtained [II. 511-12, 518]. An excessive quantity of water softener was required of the order of one drum to one thousand barrels of oil recovered [II. 507, 528]. The simple water softeners referred to in the water softener patent were of two types. The first was an inorganic material such as sodium carbonate (soda ash). The other was an organic material consisting of a suitable fatty acid neutralized with an alkali (common soap). As early as 1913 Barnickel had begun experimenting with another class of materials of a different type. These latter chemicals involved reacting a fatty material with sulfuric acid in such a manner as to modify the fatty acid radical by

addition or substitution reactions. While engaged in treating roily (emulsified) oil for the Mt. Vernon Oil Company at Tanaha, Oklahoma with a simple water softener, in the spring of 1914 Barnickel had conducted some experimental tests using a chemical produced by reacting red oil (oleic acid) with sulfuric acid. These tests were successful but no attempt was then made to place such a treating agent in commercial use because of the decided objection on the part of pipe-line operators to the use of any chemical made with sulfuric acid. By early 1918 Barnickel realized that the limitations of his water softening agent could not be surmounted and he determined to push the modified fatty acid type of chemicals. Chemists were hired and undertook the commercial production of these materials. Late in 1918 Barnickel learned that two of his associates, Dons and Hinrichs, had both applied for patents covering the use of these new agents. Barnickel immediately prepared his application for the patent here in suit and the same was filed on Jan. 4, 1919. An interference contest was fought through the Patent Office and was successively decided in Barnickel's favor by the Examiner of Interferences [III. 933], the Board of Examiners-in-Chief [III. 944] and by the Commissioner of Patents [III. 956].* The patent here in question, No. 1,467,831, issued on Sept. 11, 1923 [IV. 7] and is known as the modified fatty acid patent.

The first commercial manufacture and sale of a modified fatty acid covered by the patent here in question occcurred early in 1919 after the application was filed for the patent in suit. The product was in liquid form (the water softeners were solids) and was known first as liquid Tretolite and later simply as Tretolite. During the year

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*The issue raised and decided in these interferences was whether Dons and Hinrichs were prior original inventors or whether they derived their knowledge from Barnickel.

1919, 341 drums of this liquid Tretolite were sold as compared with 306 drums of the earlier Okla (water softener). The business grew out of all proportions to any business that had ever been done with Okla. Roily oils that could not be treated with the simple water softeners were treated without difficulty with the liquid Tretolite. The liquid Tretolite proved to be ten times as effective as the Okla [I. 398]. One drum of the modified fatty acid agent was found sufficient to recover 10,000 barrels of oil [II. 528]. The operators found no difficulty in obtaining a complete separation of the emulsion. In a few years the use of a simple water softener had been completely abandoned. The use of Tretolite covered by the patent here in question has since continued to be standard practice throughout the oil producing industry. This use today extends throughout all the oil fields of this country and into many foreign countries. The comparative sales by years of the agents of the water softener and modified fatty acid patents are set forth in Exhibit 32 [IV. 45]. Exhibit 32 shows that appellees have sold over 173,000 drums of this chemical between 1919 and 1934 [II. 493; the trial of this case began in March, 1935]. For this appellees received [at a price of $100. per drum - II. 493-4] in excess of seventeen million dollars; but by the use of this chemical more than a *billion* barrels of oil have been recovered. These achievements are not outranked by any of the inventions found in the books. Judged by the benefits which he conferred Barnickel ranks with any of the foremost inventors who might be named. When we add to this the fact that he solved an old and long-standing problem which others had come to conclude could not be solved it would seem justifiable to view with impatience any belittling of what he did.

The master and court below have found that the modified fatty acid patent clearly discloses and claims the use of a sulfonated fatty oil of the kind employed by the de-

fendants and held to infringe in this case. In writing the patent Barnickel was faced with a difficult problem in selecting the terms to be employed to define the type of chemicals here involved. The molecular reactions that occur when fatty materials are acted upon by sulfuric acid are complex and varied. [See testimony of Monson, I. 311-370, and Exhibits 13-23, IV. 21-43.] It was incumbent upon Barnickel to define these chemicals in terms which would be understood by those skilled in the art. Unfortunately for him there were no agreed technical terms consistently employed to describe the product of the reaction of sulfuric acid on fatty materials. Such products had been variously referred to in the literature as sulfonated oils, sulfo-fatty acids, sulfonates of fatty acids, sulfurized fatty acids, etc. [III. 1054-5]. Therefore Barnickel wrote his own dictionary.* After a preliminary statement as to the nature of crude oil emulsions, Barnickel refers in his modified fatty acid patent [IV. 7] to his earlier sulfate and water softener patents. He then proceeds to distinguish the new agents from those disclosed in the earlier patents. Contrasting his new agents with the earlier agents, he says:—

> "I have also discovered that when a fatty acid is modified by the action upon it of certain substituting chemicals or reagents capable of forming addition or substitution products and the resultant product or its ester or salt, which, for convenience, I will refer to as a 'modified fatty acid', is used to treat an emulsion of the character above referred to, the power of the treating agent to break the emulsion is greatly intensified." (1/57-67.)**

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*This he had the right to do. (*Kintner v. Atlantic Communication Co.*, 249 F. 73, at 75; *Cameron Septic Tank Co. v. Village of Saratoga Springs*, 159 F. 453, at 455.)

**In referring to the patent in suit the "shorthand" method of indicating the page and line will be adopted; thus, "(1/57-67)" indicates p. 1, lines 57-67.

This is further elaborated in the patent by the statement reading:–

> "One group of substances that I have found to be very efficient for treating such emulsions consists of practically all substitution and addition products of the fatty acids and mixtures of the same. Hence, for the sake of brevity, I have herein used the term 'modified fatty acid' to mean a substance, which, in addition to being obtained by the action of a reagent on a fatty acid, also retains the fundamental characteristics of the fatty acids and bears a simple genetic relationship to the fatty acids, the intention being to include by this term all substitution and addition products of the fatty acids and mixtures of same, which possess most of the qualities or distinguishing characteristics of fatty acids, but not to include soaps of the kind mentioned in my U. S. Patent 1,223,659."
>
> (1/82-100.)

There was no issue between the parties at the trial of this case as to the meaning of the language thus employed by Barnickel. The meaning attached by plaintiffs was set forth in answer to interrogatories propounded by defendants. Defendants accepted the same and offered plaintiffs' answers in evidence, thereby binding both parties. The meaning of the phrase "fundamental characteristics of the fatty acids" was established by the answer to interrogatory 22 [II. 574] and the meaning of the phrase "simple genetic relationship" by the answer to interrogatory 24 [II. 575]. The interrogatory answers were established to be correct by the testimony of Monson [I. 309, 324, 366; II. 432, 435, 463-4] and Morse [III. 1058, 1071-2]. This was adopted by the master in his report [I. 139-140] and the master's finding was expressly confirmed by the court [I. 172]. The term "modified fatty

acid" was coined by Barnickel to meet the difficulty noted by the Patent Office Examiner in acting upon the patent application. In the action dated May 22, 1923 the Examiner stated:—

> "The examiner appreciates the difficulty applicant has encountered in selecting a generic expression to include all the reagents employed and is unable to suggest one. . . ." [IV. 375.]

The master found that the meaning of the term "modified fatty acid" coined by Barnickel is sufficiently defined by the patent and that the term fairly distinguishes the chemicals covered by the patent from those that lie outside of the patent, saying:—

> "The term 'modified fatty acid' is not found in chemical literature. It appears for the first time in the patent as a term coined by the patentee to designate generically a class of organic compounds. The patent and file wrapper history give fair definition to the term. It includes a large class of the products of reactions between fatty acids and reagents which cause substitutions and additions as heretofore described without destroying the fundamental long aliphatic chain and the COO—of the carboxyl group. This excludes any products of decomposition. Common soaps of the kind mentioned in the first patent are specifically excluded from the classification.
>
> "At the time the specifications of the patent were drawn fatty acids and their derivatives as used in industrial arts such as the textile industry, soap and candle making were produced from vegetable and animal fats. In adopting the term 'modified fatty acids' the patentee was referring to this class of compounds and did not intend to include acids such as acetic acid. A patentee is entitled to define his own terms. Rajah Auto Supply Co. v. Belvidere Screw and Machine Co., 275 Fed. 761." [I. 141-42.]

The disclosure of the patent does not stop with the statement of the general chemical characteristics of the materials to be used and the application of the coined term "modified fatty acid" to define them, but proceeds to identify the specific materials by their technical names. This appears in the patent as follows:–

> "While any substance derived from fatty acids and which retains the fundamental characteristics of the fatty acids, has the property of breaking such emulsions more or less effectively, the following derivatives of fatty acids are particularly well adapted for breaking these emulsions, namely, the esters, and sulfonates of fatty acids, the sulfo-aromatic compounds of fatty acids, sulfurized fatty acids, the salts and esters of such substances, and mixtures of two or more of the substances above mentioned. The most practical and satisfactory treating agents that I have thus far found, however, are the esters and aromatic compounds of sulfo-fatty acids, the sulfo-fatty acids, and the salts of such substances." (2/6-22.)

The materials thus specifically referred to by Barnickel are all products of the reaction of sulfuric acid on fatty materials [III. 1092-93]. The evidence establishes and the master found that these materials are known commercially in various grades under the trade name, Turkey red oil, the finding reading:–

> "The products so obtained are commercially known as 'Turkey red oils'. The terms 'Turkey red oil' and 'sulfonated oil' have been used synonymously in industrial chemistry. It is correct to say that Turkey red oils are sulfonated oils but not that all sulfonated oils are Turkey red oils. They are so treated by Lewkowitsch beginning at page 207 Vol. III, 6th edition of his work. Turkey red or sulfonated oils are properly classified as sulfo fatty acids. When neutralized it is correct to classify them as salts of sulfo fatty acids." [I. 141.]

This finding was expressly confirmed by the court [I. 173]. The finding is amply supported by the evidence. The testimony shows that these chemicals are included under the trade name Turkey red oil whether the product is in the acid form or is partially or completely neutralized [II. 672, 676, 799; III. 1051]. In the technical literature these same materials have been given various names including sulfo-fatty acids, sulfonated oils, sulfonates of fatty acids, and sulfurized fatty acids [III. 1054-5].

The man skilled in the art would have no difficulty in recognizing from these chemical names that the materials referred to by Barnickel are the various sulfonated fatty products commonly known under the trade name of Turkey red oil. This was true of the Patent Office Examiner during the prosecution of the application for the patent. In the first official action of the Patent Office under date of Jan. 14, 1919 the Examiner stated:–

> "Attention is called to Felt, 1,213,795, Jan. 23, 1917, 196-37, which shows the use of a sulpho-fatty acid for separating water from hydrocarbons, . . ." [IV. 333.]

An examination of the Felt patent [Exhibit 63 – IV. 201] shows that it refers to "Turkey red oil" (p. 1, line 65; p. 2, lines 22, 31, 44 and 52]. This is the substance mentioned in the Felt patent which the Examiner recognized as a sulfo-fatty acid. This clearly demonstrates that it was the understanding of the Patent Office in granting the patent that the terms of the patent (sulfo-fatty acid being expressly mentioned) were understood to include the products commonly marketed under the name Turkey red oil. This suit was tried and determined below on this simplification. By this means such highly technical questions as regard the nature of the varied molecules constituting the numerous addition and substitution products that are capable of being formed by the action of sulfuric acid on fatty materials was sought to be avoided. The

patent was granted with the understanding that it was to include the use of Turkey red oil. The chemical employed by the defendants is admittedly a Turkey red oil. The master so found [I. 148]. Why then go further?

The discovery patented in the modified fatty acid patent was a remarkable one. This was Barnickel's really great achievement and the discovery that has given him world fame. Barnickel lived long enough to see that he had succeeded in his work, but (dying in 1923) he did not live long enough to know that his success surpassed even his most optimistic expectations. There can be no question as to the patentable nature of this discovery. There was nothing by which it could be predicted. Turkey red oils or sulfo-fatty acids are no more effective water softeners than simple soaps [II. 695]. Consistent with the teachings of the water softener patent they would be expected to be no better treating agents. Barnickel discovered their power empirically as a result of a tireless and persevering search extending over many years. It is immaterial whether others could have made the same discovery if they had done what he did. To Barnickel goes the credit for he alone did it. It is well settled that his discovery of the theretofore unsuspected power and markedly superior effectiveness of these chemicals to break crude oil emulsions constitutes a patentable invention. The decision of the Circuit Court of Appeals for the Eighth Circuit (*Producers & Refiners Corp. v. Lehmann*) sustaining Barnickel's earlier water softener patent is ample authority to support this statement of the law. In that case the Court sustained the water softener patent because Barnickel had there discovered the previously unknown power of the simple water softeners to break emulsions more effectively than the copperas of his prior sulfate patent. By comparison, the water softener discovery was but a short step. The difference in demulsifying power between the water softeners and the prior copperas is

overwhelmed by the vastly greater difference in demulsifying power between the modified fatty acids and such earlier water softeners. Compare the decision of Judge Wallace in *Celluloid Mfg. Co. v. American Zylonite Co., et al.,* 35 F. 301, sustaining the discovery of Stevens of the value of fusel-oil as a solvent of camphor in conjunction with nitro-cellulose. See also *Naylor v. Alsop Process Co.,* 168 F. 911 – C.C.A. 8. In this class of invention the law does not permit credit for the discovery to be denied upon any claim that after the discovery the selection of the new chemicals appears simple or obvious, because as stated by Mr. Justice Taft in *Corona Cord Tire Co. v. Dovan Chemical Corp.,* 276 U. S. 358, 72 L. ed. 610, at 614, the action of the chemical "can not be forecast by its chemical composition, for such action is not understood and is not known except by actual test." Barnickel did not merely find another treating agent comparable in efficiency with those previously known. He found something ten times as good. There is ample authority that this is more than sufficient to uphold the patent.*

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*In *Eibel Process Co. v. Minnesota & Ontario Paper Co.,* 261 U. S. 45, 67 L. Ed. 523, the patented improvement increased the output of paper making machines from 500 to between 600 and 700 feet per minute.

In *International Cork Co. v. New Process Cork Co.,* 6 F. (2d) 420 (C.C.A. 2), the patented improvement doubled the speed of production of bottle closures.

In *Elyria Iron & Steel Co. v. Mohegan Tube Co.,* 7 F. (2d) 827 (C.C.A. 2), the invention trebled the production of butt-welded thin-walled tubing.

In *Yablick v. Protecto Safety Appliance Corp.,* 21 F. (2d) 885 (C.C.A. 3), the new absorbent material increased the period of effectiveness of gas masks.

In *Silent Glow Oil Burner Corp. v. Crookes,* 6 Fed. Supp. 585 (D.C. Conn.), the invention increased the heat capacity of a burner from 25% to 40% and reduced the starting period from 30% to 50%.

In *Webster Loom Co. v. Higgins,* 105 U. S. 580, at 591, 26 L. Ed. 1177, the Court said:

> "It was, certainly, a new and useful result to make a loom produce fifty yards a day, where it never before had produced more than forty; and we think that the combination of elements by which this was effected, even if those elements were separately known before, was invention sufficient to form the basis of a patent."

Claims 1, 2, 4, 7, 8, 9 and 10 of the patent are here in suit. Claims 1 and 10 may be regarded as typical and read as follows:–

> 1. In a process for treating petroleum emulsions, the steps of subjecting the emulsion to the action of a modified fatty acid, as herein defined, to cause the emulsion to break and separate into an upper stratum of oil and a lower stratum of water or brine.
>
> 10. In the art of treating roily oil and bottom settlings, the process which comprises thoroughly commingling a sulfo fatty acid with the oil to be treated, thereby freeing the globules of water from the oil, and then permitting the relatively heavy substances in the oil to drop to the bottom of the mass, whereby the oil is separated from the water and impurities.

In claim 1 the agent is defined as a "modified fatty acid" whereas in claim 10 the agent is defined as a "sulfo fatty acid". This distinction is of no importance here because all of the claims in issue were held infringed by the master and by the court. Both the court and the master found that the defendants' infringing agent responds to both the definition of a modified fatty acid and the definition of a sulfo fatty acid within the meaning of the patent. We shall refer to this in greater detail when we come to the discussion of defendants' denial of infringement. With the foregoing statement of the invention and patent here involved we shall now turn to the various contentions made in appellants' brief. The answer to every one of these contentions will be found in the evidence contained in the record and the findings of the master and court below.

APPELLANTS' ASSERTION THAT THE PATENT IS INVALID.

(a) **For Alleged Indefiniteness.** – Appellants object to the term modified fatty acid and contend that it is too indefinite and too broad. The master [I. 144-45] and the court below [I. 174-75] have found that neither proposition is correct in fact. There is ample evidence to support such findings. In any event the attack on the term modified fatty acid if successful would not affect the validity of the patent as to the specific chemicals named in the specification (2/18-22) or the validity of the claims 9 and 10 in suit which do not employ the term modified fatty acid but call specifically for a "sulfo-fatty acid".

The master was clearly correct in finding that the patent "gives fair definition" to the term "modified fatty acid" [I. 141] and it is not true that plaintiffs' experts were unable to agree on the meaning of the term. The patent expressly states that the term "modified fatty acid" is used to define products resulting from the action upon a fatty acid of chemicals or reagents capable of forming addition or substitution products (1/57-64) which products retain the fundamental characteristics of the fatty acids and bear a simple genetic relationship thereto (1/87-93). An organic chemist would have no difficulty in understanding this language. Plaintiffs' understanding of the term was set forth in answer to interrogatories [II. 574-75] and defendants accepted this meaning, offering in evidence plaintiffs' interrogatory answers. These definitions embody nothing that cannot be learned from any text-book on organic chemistry. The patent specification is *prima facie* sufficient, and whether the definition of the patent is sufficiently clear is a question of fact and not of con-

struction. (*Schumacher v. Buttonlath Mfg. Co.*, 292 F. 522, 532 – C.C.A. 9.) The term "addition or substitution products" has a settled and definite chemical meaning. No explanation in the patent was required to render this term understandable to the skilled man in the art. Plaintiffs' expert [I. 310, 323] and defendants' expert [II. 795] had no difficulty in explaining the meaning of addition or substitution products. The term was repeatedly used by defendants' counsel in cross-examination [II. 419, 721, 795]. No one at the trial purported to have any difficulty in understanding the meaning of this term, and everyone understood it the same. There is nothing mysterious or complicated about the "fundamental characteristics of fatty acids." They are known to the organic chemist. It was unnecessary for Barnickel to recite this commonplace information in the patent. The fatty acids are the acids of vegetable and animal oils and fats. They are characterized in the free state by the general formula R.COOH, in which R is a long carbon chain aliphatic group and COOH is the carboxyl group. The witnesses for both the plaintiffs and the defendants agreed at the trial that the "fundamental characteristics of fatty acids" are the presence in the molecule of the aliphatic as well as the carboxyl group [I. 308, 463-4; II 659, 834-5]. No chemist would have any difficulty in understanding the simple genetic relationship borne by a modified fatty acid to its parent fatty material. A fatty acid may be written as R.COOH. A modified fatty acid may be written as R′.COOH. The relationship between parent and derivative is clear from these two structural formulae. The derivative has one or more added or substituted elements or groups, represented by (′), in the aliphatic group. A fatty acid, and a modi-

fied fatty acid derived from the fatty acid, are as similar as R and R′. The relationship is at once apparent. There is no reason why the skilled chemist could not understand what Barnickel meant by the coined term "modified fatty acid" in the patent specification. This is fully set forth in the Court's Memorandum of Conclusions confirming the findings of the master [I. 174-75].

Appellants' brief (p. 12) complains of the fact that Barnickel in his patent merely identified the chemicals he sought to cover but did not describe how to manufacture them. There is a very simple answer to this proposition. There was no necessity for any description of how to manufacture the chemicals in question because the art already knew how to do so. Turkey red oils and sulfo-fatty acids were articles of commerce for more than forty years before Barnickel applied for his patent [II. 482; III. 1054-5; IV. 133, 185]. Their method of manufacture had been fully described in text-books [IV. 193-7]. This was the finding of the master, as follows:–

> "The specification does not teach the method by which the treating agent or agents are to be manufactured, but the definition of the products given in the patent was addressed to persons in that art who would have had sufficient knowledge of chemical processes to have manufactured them. For example, the process of manufacturing Turkey red oil, a sulfo fatty acid, was well known." [I. 144.]

As skilled chemists knew how to manufacture the chemicals in question the master was correct in holding that this information need not be set forth in the patent.–

> "That which is common and well known is as if it were written out in the patent and delineated in the drawings." (*Webster Loom Co. v. Higgins,* 105 U. S. 580, 586.)

> "But the disclosure is addressed to those skilled in chemistry (Minerals Separation, Ltd. v. Hyde, *supra,* 242 U. S. at pages 270, 271, 37 Sup. Ct. 82, 61 L. Ed. 286), and we are impressed by what seems to us the greater weight of the evidence that the disclosure is ample for those so skilled."
>
> (*Toledo Rex Spray Co. v. California Spray Co.,* 268 F. 201, at 204-5.)

The fact that many specifically different substitution and addition products can be made from fatty acids and lie within the term modified fatty acid is not of itself detrimental to the patent. Their existence is due to the fact that variations in the product will result from variations in the proportions of materials, strength of materials, and in the temperatures and times of reaction employed in the manufacture, as explained in the testimony of Monson [I. 374-6; II. 452-3]. This presents no objection unless it be shown that the specification of the patent is not sufficiently clear to enable one skilled in the art to produce a chemical that would meet his requirements (*Oliver-Sherwood Co. v. Patterson-Ballagh Corp.,* 95 F. (2d) 70, at 78 – C.C.A. 9). This cannot be shown in this case. The patent points out that the emulsions differ greatly in their composition and that in some instances one derivative of a fatty acid is more efficient than others in breaking a particular emulsion and in other instances an entirely different derivative or homologue will be found to be more efficient and economical (1/101—2/6). The law does not require that every one of the chemicals contemplated by the patent be adapted to treat every crude oil emulsion. This is illustrated by the decision of the Supreme Court in *Minerals Separation, Ltd. v. Hyde,* 242 U. S. 261, 61

L. Ed. 286, referred to in the master's report. In that case the flotation patent was sustained although the Court found that the process was effective with sulfide ores but had not proved applicable to oxide ores and required different oils for the best results with different individual sulfide ores. The selection of a particular oil for use on a given ore was held to require the mere skill of the calling.

The rule relied upon in appellants' brief (p. 12) that a patent calling for a large number of substances may be invalid, if but a few of the substances are effective, has no application in this case. To bring this case within that rule it is necessary that defendants show that at least some of the chemicals included in the patent are inoperative for the purpose. This the defendants have been unable to do as found by the master and the court below. The only evidence on this matter produced by the defendants was that the particular chemical substances disclosed in Exhibits P and Q would not break the particular emulsion from California Production Co.'s Davis No. 2 well. The master concluded that this evidence did not exclude the possibility that satisfactory results could be obtained with these chemicals on other emulsions and that the showing was not sufficient to maintain the defense [I. 145]. Furthermore the evidence does not establish that any of the materials relied on in Exhibits P and Q are among the materials covered by the patent in suit. Some 23 different chemicals are listed in these exhibits. Out of the materials referred to, only those purchased by the defendants from the Baker Castor Oil Co., were offered in evidence. These are Exhibits P-1 to P-7 and P-11 to P-16 [II. 782]. Defendants themselves do not know what these materials

are except by hearsay. No analysis of these materials was made and there is no knowledge of how the materials were produced [II. 772]. These materials may or may not be what the labels call for. None of them were made for the purpose of treating crude oil emulsions. The same materials in other form might be effective for that purpose. The first three materials referred to in Exhibits P and Q are simple esters of ricinoleic acid [II. 772]. They are merely organic salts corresponding to simple soaps and do not come within the patent in suit for the same reason that simple soaps are excluded. The next ten are special products purchased from the Baker Castor Oil Co. No reference to them can be found in any textbook relating to oils and fats. They were first produced in 1933 [II. 781]. They do not purport to be sulfonated products. The next seven materials in the list are, like the first three, admittedly all simple esters [II. 770-4]. Chloro-propyl-toluen-sulfonate and potassium ethanesulfonate, next appearing, are each conceded not to be fatty acid derivatives [II. 776]. This leaves only sodium sulfo-acetate and toluenesulfonyl acetic acid. These apparently are special laboratory materials made for the defendants in the chemical department of the University of Illinois and are not commercial materials [II. 768]. They purport to be sulfonated derivates of acetic acid.* Neither of them can

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*Acetic acid is not derived from animal or vegetable oils or fats and is not a fatty acid. As found by the court [I. 172], all members of the aliphatic series are not fatty acids. There is no question but that Barnickel had in mind only the higher members of the aliphatic series of the kind found in animal or vegetable oils and fats. As found by the master: "In adopting the term 'modified fatty acids,' the patentee was referring to this class of compounds and did not intend to include acids such as acetic acid" [I. 142]. This is a complete answer to appellants' argument (Brief, pp. 15-16) based on the fact that acetic acid is classified chemically as an aliphatic acid along with the fatty acids.

be considered a sulfo-fatty acid in either acidic or neutralized form. In view of this evidence the trial court properly found that none of these chemicals have any bearing on the validity of the patent in suit, as follows:–

> "It further appearing with respect to the alleged 23 modified fatty acids which defendants claim will not break a crude oil emulsion, the evidence tends to prove that 10 of these are of unknown composition and that the remaining 13 lie outside of the scope of and are not relevant to, said patent No. 1,467,831;".
>
> [I. 176.]

Turkey red oil.– The propositions advanced at this point in defendants' brief (pp. 17-19, 61-63) are entirely fallacious. In referring to Turkey red oil plaintiffs have in no manner admitted that the patent in suit is indefinite. Quite the contrary. Turkey red oil is referred to merely as a means of simplifying the technical phases of this case. The justification for this has been stated above (pp. 13-15). The situation was not misunderstood by the master or court below. As stated by the court:–

> "It further appearing that many fatty acids are called oils in industrial chemistry, particularly sulfonated oils and sulfonated acids, and that the terms sulfonated oil and sulfo-fatty acid are used synonymously, and that all sulfonated oils in industry are referred to as sulfo-fatty acids and that the materials known as Turkey red or sulfonated oils are regarded as sulfo-fatty acids, and the evidence indicating that the term Turkey red oil probably was employed by witnesses during the hearing before the Master in an effort to clarify the testimony and provide a more convenient and understandable term for the treating agent described in the patent involved herein than was expressed in such patent;". [I. 173-74.]

While referring to Turkey red oil as a means of simplification, both the master and court have gone further and determined the issues of validity and infringement on the basis of the terms "modified fatty acid" and "sulfo-fatty acid" as appearing in the patent specification and claims. If this Court prefers it may disregard entirely all reference to Turkey red oil and consider the case solely on the basis of the more technical terms appearing in the patent. This will not change the result.

There is no justification for defendants' attempt (Brief, pp. 17-18) to deny that it is apparent from the patent that the chemicals covered by the patent are made by the action of sulfuric acid on a fatty material. It is true that the term "sulfuric acid" is not found in the patent. However, any chemist would know that a "sulfo-fatty acid" as specified in the patent is made by reacting sulfuric acid with a fatty material. The same is true of the other specific chemicals called for in the patent including the "sulfurized fatty acids." Defendants have misrepresented the testimony of Dr. Morse in their attempt to show the contrary. In explaining a sulfurized fatty acid Dr. Morse pointed out that this term was used to identify "the products resulting from the action of sulfuric acid on oils and fats" and referred to the book by Wright published in 1894 for his authority [III. 1053-54]. He did not deny that the term "sulfurized fatty acid" elsewhere "might have some other meaning" such as to apply to products produced by the action of sulfur at high temperatures or sulfur chloride at low temperatures as stated in Lewkowitsch [III. 1118-19]. This is totally immaterial. Nothing in the evidence justifies defendants' statement (Brief, p. 18) that Exhibit 13 shows a sulfo-fatty acid "not made by reaction with

sulfuric acid." The ricinoleo-sulfuric acid given in the book by Lewkowitsch [IV. 23] and referred to by defendants is identical with the material made with sulfuric acid shown in Exhibit 15 [IV. 27]. Another name for chlorosulfonic acid is chlorosulfuric acid.* The specific difference between chlorosulfuric acid and the more commonly used 66° Bé. concentrated sulfuric acid is totally immaterial in this case and it makes no difference whether the specific chemical referred to in Exhibit 13 be made with one or the other. As found by the master:– "The patent is directed to the use of treating agents of a certain class and is not limited to agents made by a particular process." [I. 148.]

The record fully supports the findings of the master and the court below that the wording of the patent is sufficiently definite to teach a skilled chemist the value of the products resulting from the action of sulfuric acid on fatty materials as agents for breaking crude oil emulsions discovered by Barnickel. The fact that Barnickel did not use the term "Turkey red oil" is of no consequence. He used the equivalent term, "sulfo-fatty acid." Being a chemist he used the technical chemical term rather than the trade term. Defendants must admit that the disclosure of the patent is sufficiently definite with respect to these materials. Their only complaint is that the patent might be construed to include something else. That possibility, if it existed, would not concern us in this case. Defendants employ the specific material admittedly definitely prescribed in the patent. Under these circumstances the Court is not called upon in this case to determine the validity or scope of the patent beyond the issue of infringement here. As found by the master:–

> "These claims are valid at least in so far as they read on sulfo fatty acids and we need to go no further in

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*See "Inorganic Chemistry," by Cady, 1912 Edition, p. 216. (McGraw-Hill, N. Y.)

this case. Carnegie Steel Co. v. Cambria Iron Co., 185 U. S. 403, Faultless Rubber Co. v. Star Rubber Co., 202 Fed. 927." [I. 146.]

These cases fully support the master's view. As said by the Supreme Court in the *Cambria Iron Co.* case cited by the master:–

> "Whether the claim would be void if construed to include cupola metal it is unnecessary to consider. It clearly includes metal from blast furnaces, and is not rendered void by the possibility of its including cupola metal. The claim of a patent must always be explained by and read in connection with the specification, and as this claim clearly includes metal taken from blast furnaces, the question whether it includes every molten metal is as much eliminated from our consideration in this case as if it were sought to show that the word 'metal' might include other metals than iron." (46 L. Ed. p. 984.)

As said by the Circuit Court of Appeals for the Sixth Circuit in the *Faultless Rubber* case also cited by the master:–

> "The Supreme Court has now firmly established the rule that a statute will not be held broadly invalid because its general language extends to some class, as to which its operation would be constitutionally forbidden. It will consider no such question, until the objection is made by one of the class which has the right to complain. It seems matter of fair analogy to say that a patent shall not broadly be held invalid only because of the possibility that in some future case its language may be too vague for intelligent application, when, in the only case which has arisen, and perhaps the only case which ever will arise, there is no such difficulty. The fact that a man's title to the edge of his field is doubtful is no defense to a trespasser on that part where the title is clear."
>
> (202 F. p. 931.)

(b) **For Alleged Abandonment.**

By Alleged Commercial Use. – The assertion that Barnickel abandoned the invention of the patent in suit by public use more than two years prior to the filing of the application for the patent is completely contradicted by the master's findings of fact to the contrary and the representation of the evidence on that matter found in appellants' brief is totally unwarranted and open to the gravest criticism. The master has found that the first commercial use of a chemical covered by the patent in suit "began in 1919" [I. 131] and that "there was no abandonment" [I. 147]. The evidence fully establishes the correctness of these findings. There is nothing in the record to establish anything to the contrary. Particularly the items relied upon in appellants' brief do not do so. An examination of the interference proceedings (Defts. Ex.'s C and C-1) will disclose nothing to support defendants' contention. The use of a sulfo-fatty acid at the Mt. Vernon Oil Co. at Tanaha, Oklahoma, in February, 1914, was purely experimental. No sulfo-fatty acid was employed by Barnickel for The Texas Co. at Cushing, Oklahoma, in 1915. The red oil obtained by Barnickel from the Goodwin Mfg. Co. for use at Tanaha in 1914 was ordinary oleic acid and not a sulfo-fatty acid or Turkey red oil.

The allegation in the preliminary statements filed by Barnickel in the Patent Office Interferences [III. 884-87] that he reduced the invention to practice prior to October, 1914 (referring to his experiments with sulfo-fatty acid conducted at Tanaha, Oklahoma, in February, 1914), in no manner establishes that in so reducing the invention

to practice he made any commercial or public use of the invention there. A process may be reduced to practice by performing an experiment and this need not be within the two-year period preceding the filing of the patent application. This is well settled. The defendants confuse a reduction to practice with a commercial use. There are numerous decisions where patents have been sustained for inventions that were reduced to practice more than two years prior to the application for the patent.* The evidence in the interference record fully establishes that although Barnickel had reduced the invention to practice experimentally as early as October, 1914, he did not make any actual commercial use of the invention until after 1918. Indeed this was the holding of the Patent Office tribunals. The Examiner of Interferences held that the testimony of Barnickel proved:—

> ". . . that Barnickel had knowledge of the use of sulfo-fatty acid in treating roily oil in the spring of 1913." [Exhibit C-1, p. 5; III. 937.]

but that Barnickel did not

> "adopt sulfo-fatty acid in actual practice until after he learned of Dons' successful tests in Oklahoma."
> [Exhibit C-1, p. 5; III. 942.]

**Western Electric Co. v. Sperry Electric Co.*, 58 F. 186 (C.C.A. 7); *Von Schmidt v. Bowers*, 80 F. 121, 143 (C.C.A. 9); *International Telephone Mfg. Co. v. Kellogg Switch Board & Supply Co.*, 171 F. 651 (C.C.A. 7); *Penn Electrical & Mfg. Co. v. Conroy*, 159 F. 943 (C.C.A. 3); *Westinghouse Electric & Mfg. Co. v. Saranac Lake Electric Light Co.*, 108 F. 221; *Appert v. Brownsville Plate Glass Co.*, 144 F. 115; *Harmon v. Struthers*, 57 F. 637; *J. E. Hanger, Inc. v. J. F. Rowley Co.*, 298 F. 359; *Eck v. Kutz*, 132 F. 758.

The earliest date for these tests claimed by Dons was in 1918. In affirming the Examiner of Interferences the Board of Examiners-in-Chief said:—

> "We think any delay on the part of Barnickel either in filing his application or in making use of sulfo-fatty acid sold commercially is immaterial to a decision in this interference." [Exhibit C-1, p. 22; III.955.]

The remainder of Barnickel's preliminary statement relied upon by the defendants, that "since" October, 1914, he had manufactured and sold large quantities of the chemical, in no way supports the defendants' contention that such chemical was on sale or in commercial use more than two years before the filing of the application for the patent in suit on January 4, 1919. The amended preliminary statement containing this allegation was executed by Barnickel on the 22nd day of May, 1919 [III. 887]. Barnickel there referred to the manufacture and sale of the chemical prior to the date at which he is speaking. The sale of the chemical was not begun until the early part of 1919 (Barnickel [III. 907]; Lehmann [II. 614]). The reference in appellants' brief (p. 24) to a statement alleged to have been made by Barnickel's attorney in argument of the interference may be disregarded. The admission of this statement was denied by the master [III. 874] on the authority of Circuit Judge Sanborn's decision in *Atchison T. & S. F. R. Co. v. Sullivan,* 173 F. 456, at 463 (C. C. A. 8). No exception to this ruling was included in defendants' exceptions to the master's report. Mr. Bakewell had no knowledge of the matter except as appeared in the interference record to which he was addressing his argument. His inadvertent statement is not evidence.

There was no commercial use of a sulfo-fatty acid by Barnickel for the Mt. Vernon Oil Co. at Tanaha, Oklahoma, in February, 1914. As to this matter the finding of the master is as follows:–

> "In February, 1914, he entered into a contract to treat oil for the Mount Vernon Oil Company at Tanaha, Oklahoma. While waiting for a treating plant to be built he tried experiments which included the treating of oil with a mixture of oleic acid and sulfuric acid and also with a mixture of these two with phenol. He concluded that such agents would treat roily oil but not as efficiently as sodium oleate. His commercial operations at Tanaha were carried on with sodium oleate." [I. 146.]

This finding is amply supported by the evidence. It is in accord with the testimony of Barnickel contained in the interference record [III. 905-06]. This testimony clearly shows that sulfo-fatty acid was used in experimental tests only. These tests were conducted before the commercial plant had been completed at Tanaha. Barnickel particularly stated in his testimony that no sulfo-fatty acid was used in the regular operation of the plant and that the plant was operated with sodium oleate.– "I then started this plant in operation regularly using a solution of sodium oleate, . . ." [III. 906]. It is well settled that experimental tests do not constitute a commercial or public use and that it is not necessary that the patent application be filed within two years of such experimental tests. (*Walker on Patents* (6th Ed.) 139; *Elizabeth v. Pavement Co.,* 97 U. S. 134.) This would be true even if the oil treated in the course of such experiments had been sold. (*Smith & Griggs Mfg. Co. v. Sprague,* 123 U. S. 249.) However,

Barnickel's testimony shows that the few barrels of oil treated at Tanaha with the sulfo-fatty acid were not sold [III. 907].

The only other purported instance of a commercial use by Barnickel more than two years prior to the filing of his application asserted in appellants' brief (p. 22) is said to have occurred while Barnickel was working with The Texas Co. at Cushing, Oklahoma, in 1915. There is no evidence on this alleged occurrence in the record here. The testimony relied upon by appellants is represented to be quoted from the record in the suit on the water softener patent brought against Producers & Refiners Corp. (Defts. Ex. "D"). This record was received only to show what the issues were before that Court and the testimony in that regard was not admitted as evidence in this case [II. 559-60]. An examination of that record, however, discloses no justification whatever for the use attempted to be made of it by appellants. The purported quotation from the record appearing in appellants' brief (p. 22) is emasculated and only by thus distorting the testimony can it be represented to support appellants' contention. By referring to the record (Exhibit "D") it will be found that appellants have omitted from the testimony Barnickel's statement as to what chemicals he used in that operation. The omission reads:–

> "I used Gold Dust, and that was not satisfactory because the temperature required was about 180 degrees Fahrenheit to get a separation, whereas my own formulae, the formulae which I had worked out, using oleic acid, and saponifying that to make soap, I could treat that at a temperature of 110 degrees Fahrenheit."

In other words the only chemicals there employed by Barnickel were the simple water softeners of his earlier patent. No sulfo-fatty acid was employed. Under these circumstances we can conceive of no justification for defendants arguing that the operation has any bearing on this issue of this case. The operation did not involve any chemical relevant to the patent in suit.

We have already referred to the testimony of Barnickel that sodium oleate was employed in operating the plant at Tanaha for treating the oil of the Mount Vernon Oil Co. [III. 906]. The master has so found [I. 146]. There is not the slightest justification for appellants' argument (brief, pp. 24-25) that this was made with Turkey red oil. The sodium oleate used at Tanaha was made by Barnickel from red oil (oleic acid) and caustic soda purchased at St. Louis. The red oil (oleic acid) was bought from Goodwin Mfg. Co. [IV. 519, 523]. Defendants' argument is based on the claim that this was not red oil (oleic acid), but was in fact Turkey red oil (sulfo-oleic acid). This is contrary to the testimony of the manufacturers of the material. Corbett testifies that the material sold to Barnickel was red oil and that Goodwin Mfg. Co. had no other oil to sell [III. 977]. His testimony is confirmed by Hamilton [III. 995]. It was ordinary commercial red oil extensively sold by Goodwin Mfg. Co. in carload lots in this country and in Europe for the making of soaps [III. 966]. This red oil was no different from the ordinary commercial product sold under that name by any other manufacturer [III. 973]. It was oleic acid [III. 990]. Defendants' contention amounts to saying that commercial red oil marketed in this country and in Europe in 1914 was not oleic acid but sulfo-oleic acid. This is

based on a misunderstanding by defendants of the process employed by Goodwin Mfg. Co. in making red oil. Goodwin Mfg. Co. employed the standard lime pressure method. Defendants apparently believe that, because sulfuric acid was employed in that process, the product was a sulfonated material. The evidence shows conclusively that this is wrong. In the lime pressure method lime is added in the process to assist the hydrolysis and sulfuric acid is subsequently added in amounts only equivalent to the lime to neutralize the lime and to break any emulsions formed. In such a process it is well known that there is no sulfonation of the oil by the sulfuric acid. (See testimony of Dr. Morse [III. 1068].)

By Alleged Suppression. – There is not the slightest basis for appellants' contention (brief, pp. 27-29) that Barnickel illegally suppressed the invention of the patent in suit. In making this contention appellants have entirely misconceived the law. The rule establishd in *Macbeth-Evans Glass Co. v. General Electric Co.,* relied upon by appellants has no application here. That rule is simply that where an inventor elects to commercially employ his invention as a secret process and does so for more than two years he cannot thereafter change his mind and decide to patent it. This rule has no application here. There is no evidence that Barnickel commercially employed his invention in secret at any time. We have already referred to the finding of the master that the first commercial use of the invention began in 1919 [I. 131] and the evidence to support that finding. This was after the filing of the application for the patent in suit on January 4, 1919. No further discussion of this subject is required because there

is no factual support for appellants' contention. The wording of *Section 4886 of the Revised Statutes* (35 USCA, Sec. 31) definitely limits the statutory two-year period within which an application must be filed to an invention which has been put "in public use or on sale." The two-year requirement of the statute does not apply to an invention which is neither put in commercial use nor on sale prior to the filing of the application. In such a case the inventor after his conception may withhold the filing of his application as long as he desires provided no third party intervenes before the patent application is filed.*

The foregoing clearly shows that the finding below that "there was no abandonment" [I. 147] of the patented invention was clearly correct. There was no commercial use of the invention more than two years before the filing of the application for the patent. There was no suppression because there was no secret use. The burden of proving abandonment was on the defendants. The law requires proof beyond a reasonable doubt to sustain such a defense. Ample authority for the holding below is found in the decision of the Sixth Circuit Court of Appeals in *Cleveland Trust Co. v. Scriber-Schroth Co.,* 92 F. (2d) 330, 335 (reversed on other grounds in 305 U. S. 47), in which the Court stated:–

> "Questions relevant to actual or to constructive abandonment of inventions are questions of fact, Walker (6th Ed.) Sec. 152; Kendall v. Winsor, 21 How. 322, 330, 16 L. Ed. 165, and much weight must therefore be given to the findings of the master, who

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* "Inventors may, if they can, keep their invention secret; and if they do for any length of time, they do not forfeit their right to apply for a patent, unless another in the meantime has made the invention, and secured by patent the exclusive right to make, use and vend the patented improvement."

(*Bates v. Coe,* 98 U. S. 31, 25 L. Ed. 68, at 73.)

> saw and heard the witnesses. Consideration should also be given to the rule that concurrent findings of master and judge should not be set aside except for clear error, although this may prove to be an unsafe guide to just decision where exceptions to a master's report are unilluminated by oral argument and a decree entered without elucidation of the reasons upon which it is based.* The law, however, in reference to abandonment, requires that every reasonable doubt relevant to any such question should be resolved in favor of the patent, for it does not favor forfeiture. Walker, Sec. 152, and cases there cited. It was said by this court, Gear Grinding Machine Co. v. Studebaker Corp. (C.C.A.), 270 F. 934, 936: 'Abandonment depends upon intent, actual or imputed. The actual intent did not exist, and the circumstances do not require that the intent be by law imputed, as against the truth.' "

(c) **For Alleged Anticipation.** – As noted by the master [I. 142] patents to three prior inventions are asserted by appellants (brief, pp. 30-39) to anticipate the patent in suit. The master specifically found that none of them anticipate or disclose the patented invention [I. 144] as follows:–

British Patents to Lanza. – These patents [Exhibits W-15 and W-16; IV. 465, 471] are discussed in appellants' brief at pp. 30-33. Concerning them the master found [I. 143]:–

> "These patents are concerned with the refining of fatty acids particularly the separation of olein and stearine by the addition of sulfo oleic acid. There is no problem here relating to crude oil emulsions. Defendants point out the reference to an emulsion in

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*The exceptions to the master's report in the case at bar were submitted on exhaustive printed briefs and after full oral argument. The court below prepared and filed its Memorandum of Conclusions [I. 171-177].

the second Lanza patent. From an examination of both patents, taken together, it appears that the material acted upon is a solid (page 1, lines 19-20, Exhibit W-15). The second patent, directed to an apparatus, employs the same chemistry as the first patent and begins with the same material which is 'laid upon the filtering surface.' If an emulsion is formed it is after washing with the acid.

"These patents have no relevancy to the patent in suit."

These findings were expressly confirmed by the court below [I. 175] and are fully supported by the evidence. The Lanza patents relate to a process of separating stearine from olein with sulfo-oleic acid. This has nothing to do with breaking crude oil emulsions. The mixture of stearine and olein referred to in the patents is not a mixture of two liquids, one emulsified in the other, but is a mixture of solid matter (stearine) suspended in a fine state in a liquid (olein). Although called an emulsion, this mixture is a suspension and not an emulsion in the sense of the art concerned in this case [I. 397, II. 784]. The fact that sulfo-oleic acid may have been used to separate a solid from a liquid has no bearing on Barnickel's discovery of the effectiveness of sulfo-fatty acids for separating water from crude petroleum oil. Defendants do not claim that there is any disclosure of the latter in these British Lanza patents. They ask the Court to assume that anyone reading these Lanza patents would know that sulfo-oleic acid would separate a crude oil emulsion. There is nothing to justify such an assumption. It is only necessary to state

that no one ever obtained any such knowledge from the Lanza patents. These Lanza patents are foreign patents, and defendants are asking the Court to give them an effect which is not permitted by law. (*Carson v. American Smelting & Refining Co.*, 4 F. (2d) 463, 465—C.C.A. 9.)

Russian Patent to Berkgan. – This patent [Exhibit W-11; IV. 441] is discussed in appellants' brief at pp. 37-39. Concerning it the master found [I. 142-43]:–

> "This patent appears to have been issued in 1914. There is considerable doubt as to whether a proper foundation was laid to support its admission in evidence. The special master does not consider it necessary to again review this matter as it does not affect the determination of the issue of anticipation by this patent. Berkgan was dealing with the same problem as Barnickel. His solution is by treating the roily oil with naphthenic acids. It is clear that naphthenic acids are not fatty acids or derivatives therefrom. Cancellation of the original claim 14 was, in effect, a disclaimer of the products of mineral oils. (See file wrapper.)
>
> "Defendants' argument, that naphthenic acids treated with sulfuric acid can be called Turkey red oils and come within the class of treating agents specified in the patent for the reason that the plaintiffs have called a fatty acid treated by sulfuric acid a Turkey red oil, is not valid in fact or logic.
>
> "This patent does not anticipate or affect the scope of the patent in suit."

These findings are fully supported by the evidence in the record. To escape them defendants in their brief attempt to show that the naphthenic acids referred to in this Russian patent are modified fatty acids or sulfo-fatty acids, which the master found they are not. Defendants' contention can be answered in a single sentence. Naphthenic

acids are mineral acids and not fatty acids. Berkgan employed only mineral oils; he used no fats. That naphthenic acids are not fatty acids was conclusively shown at the trial.–

> "The Master: I can say now that, with as little as I know about this case, you cannot call naphthenic acids 'fatty acids.'" [III. 845.]

This was conceded by Dr. Born, the expert for the defendants [III. 845-6]. Naphthenic acids are not at all similar to the modified fatty acids or sulfo-fatty acids of the patent in suit. Naphthenic acids do not have and are not claimed to have the effective power of the chemicals of the patent in suit. The specific agents of the patent in suit are sulfonated materials. Naphthenic acids do not produce sulfo acid derivatives. This is clearly stated in the article referred to in defendants' brief, on naphthenic acids by Schmitz (Exhibit W-18) and is confirmed by the testimony of plaintiffs' expert, Dr. Morse [III. 1082]. Naphthenic acids not being fatty acids and not being capable of sulfonation are clearly not modified fatty acids or sulfo-fatty acids as called for by the patent in suit. Nor is an acid-treated naphthenic acid a Turkey red oil as argued by defendants. For this contention defendants depend upon the following statement in Lewkowitsch [IV. 513]:–

> "The production of Turkey-red oil by sulphonating the petroleum acids (naphthenic acids) has been patented by Petroff. 4."

The note is to a German patent No. 274,786. At the trial plaintiffs established that this reference is clearly in error. The German patent of this number [Exhibit 60, IV. 159-173] was produced at the hearing and shown to relate to

a steam-engine and to contain nothing supporting the statement in Lewkowitsch. Defendants now rely upon a British patent to Petroff No. 19,759 of October, 1913 [IV. 515-17]. This patent was never received in evidence. However, it contains nothing to support defendants' entire assertion that a sulfonated naphthenic acid constitutes a Turkey red oil. In fact, a clear distinction is drawn in the British patent. The statement there is as follows:– "Similar to soap manufactured from castor oil which has been treated with sulphuric acid (Turkey red oil), the soaps obtained in accordance with the present process . . .," etc. [IV. 517, lines 16-18]. There is nothing to the effect that an acid-treated naphthenic acid constitutes a Turkey red oil. In fact the disclosure is to the effect that such a material is a substitute for, rather than a Turkey red oil. The statement is clearly that Turkey red oil is a product of the action of sulfuric acid on a fatty (castor) oil.

Rogers Patent. – This patent [Exhibit W-8, IV. 439] is discussed in appellants' brief, pp. 33-36. Concerning it the master found [I. 143]:–

> "This patent was applied for after the effective date of the Barnickel invention and for that reason can not anticipate.
>
> "Even if it were properly prior art, it does not anticipate the disclosures of the second patent. The treating agent specified by Rogers is petroleum oil treated with sulfuric acid. Petroleum oils, like the naphthenic acids of Berkgan are not sulfo fatty acids, or modified fatty acids, as that term is defined by Barnickel."

The evidence in support of the master's findings regarding the Russian Berkgan patent likewise supports these findings of the master as to the Rogers patent. The Rogers patent proposes to treat petroleum emulsions with "a water soluble salt of sulfonic acid," explaining:—

> "Sulfonic acids suitable for this use are now produced in considerable quantities in the treatment of high viscosity oils with fuming sulfuric acid to produce lubricants of the best grade, and also in the production of the highly refined oils used for medicinal purposes. I prefer to employ the sodium salt of such a sulfonic acid, which may be obtained by the direct neutralization of the acid with commercial sodium carbonate (normal)." [IV. 439, lines 16-26.]

Such sulfonic acids are neither modified fatty acids nor sulfo-fatty acids [III. 1079-80]. They are made from mineral oils and not from fats. They are not Turkey red oils [III. 1138]. The master was quite correct in finding that the disclosures of this Rogers patent are not material, even if the Rogers patent were early enough to anticipate Barnickel. The record clearly shows that Barnickel's date of invention anticipates the filing date of the Rogers patent. The application for the Rogers patent was filed on January 26, 1918. At the trial defendants introduced copies of the preliminary statements executed by Barnickel in the Patent Office interferences [III. 882-7]. These show that Barnickel conceived and disclosed the invention to others during the spring of 1913 and reduced the invention to practice prior to October, 1914, and thereafter conducted experiments leading to a disclosure of the invention to Dons in June, 1918. Defendants also

offered in evidence Mr. Lehmann's answer to interrogatory No. 130, as follows:–

> "Interrogatory 130: When was process as described in patent 1,467,831 first used by patentee or on his behalf?
>
> "Answer: Reduced to practice in the latter part of February or the early part of March, 1914, but not publicly used until the year 1919." [II. 588.]

This was confirmed by Mr. Lehmann in the testimony given by him as a witness called by the defendants. He testified to a disclosure by Barnickel during February or March, 1914 [II. 589]. This evidence was not disputed. In their brief appellants (p. 36) refer to an affidavit filed in the Patent Office by Rogers on April 25, 1918. This affidavit is not in evidence in this case. The offer of the file-wrapper of the Rogers patent containing this affidavit was denied by the master [III. 1091] and no exception to this ruling was taken by the defendants. In any event the uncontradicted evidence offered by both parties establishes Barnickel's date of invention as prior to that of the purported affidavit.

(d) **For Alleged Lack of Invention.** – Notwithstanding the exhaustive search obviously made by the defendants, nothing has been found to throw any suspicion on the originality of Barnickel's work. The paucity of the prior art demonstrates the genuine novelty and patentable character of the discovery covered by the patent in suit. Confronted with this situation, defendants resort to the usual refuge sought by a defendant in such a situation. They argue without any evidence and after the event as to what might or might not have been obvious to the man

skilled in the art. This situation is familiar to the Court and requires no extended exposition of the law. This Court has long followed the lead of the Supreme Court in considering that novelty in the means and in the result is the primary test of invention. There is no suggestion of Barnickel's discovery in the prior art nor is there any evidence of any knowledge on the part of those skilled in the art that the chemicals covered by the patent could be used to effectively break crude oil emulsions. Their discovery followed a long and persevering search by Barnickel. Before he arrived at them he had first to exhaust the possibilities of other and inferior chemicals. If he had stopped with those he would never have reached the perfection provided by the chemicals of the patent in suit. Upon the evidence, the world owes its knowledge of the effectiveness of these chemicals to Barnickel. Thus from an objective viewpoint the discovery of the patent in suit fully responds to the test of invention established by the Supreme Court.* It is only by approaching the subject from a subjective viewpoint and speculating after the event and without evidence on what might or might not have been obvious to a man skilled in the art that one can possibly deny to the discovery of the patent in suit the attribute of a patented invention. But the Courts have long rejected this viewpoint and held that judges should not speculate after the event as to what might or might not have been

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**Smith v. Goodyear, etc. Co.*, 93 U. S. 486, 492-7; *New Process, etc., Co. v. Maus*, 122 U. S. 413, 423-7; *Seabury v. Am Ende*, 152 U. S. 561, 567; *Diamond, etc., Co. v. Consolidated, etc., Co.*, 220 U. S. 428, 435-43; *Eibel Process Co. v. Minn., etc., Co.*, 261 U. S. 45, 52, 68; *Minerals Separation v. Hyde*, 242 U. S. 261, 266-70; *Holland, etc. Co. v. Perkins, etc., Co.*, 277 U. S. 245, 255; *DeForest, etc., Co. v. G. E. Co.*, 283 U. S. 664, 678-9.

obvious to the man skilled in the art. This is where the argument made by appellants fails, both in fact and law. As pointed out in *Diamond Rubber Co. v. Consolidated Tire Co.,* 220 U. S. 428, 435:– "The law has other tests of the invention than subtle conjectures of what might have been seen and yet was not."

(e) **For Alleged Double Patenting.** – Appellants here contend (brief, pp. 41-47) that the patent in suit is a mere repatenting of the prior water softener patent. This obviously cannot be true in view of the rulings below that the use of the chemicals employed by defendants infringes the patent here in suit and does not infringe the prior water softener patent. Appellants' contention was fully considered by the master and is covered by the following finding [I. 144]:–

> "The most pertinent reference to the modified fatty acid patent is the water softener patent. That patent discloses the use of a small group of treating agents which are soaps of the type of sodium oleate. The modified fatty acid patent discloses the use of a class of agents which are related to the soaps of the first patent only in that they both may be generally classified as belonging to that larger group of compounds derived from the fatty acids. The sulfo fatty acids of claims 9 and 10 are a sub group. The modified fatty acids of the other claims possibly include other groups but by disclaimer exclude the soaps of the water softener patent. It follows that there cannot be anticipation by the water softener patent or the use of Gold Dust which is one of the soaps of that patent."

In confirming this finding the District Court said:—

> "It further appearing there is nothing in the water softener patent, to-wit Patent No. 1,223,659, which suggests the use of a sulfo-compound or of any addition or substitution product of a fatty acid;".
>
> [I. 175-76.]

Thus we have a situation where it has been found that the prior patent does not disclose the use of the chemicals covered by the second patent and is not infringed by the use of such chemicals. These findings are completely substantiated by the record. How then can it possibly be true that the second patent is nothing more than a duplication of the first? The proposition answers itself.

Nothing said in appellants' brief (pp. 41-47), is sufficient to raise any doubt as to the correctness of the findings below on this subject. The opinion given by Barnickel in the interference proceedings [III. 893-94] as to the scope of the claims of his water softener patent (which opinion was not sustained by the court in this case) was not received by the master as affecting the scope of that patent [III. 894]. Even if Barnickel had been correct in his view as to the scope of such claims his later patent here in question would still stand valid as a patentable improvement thereover.* The fact that the patent

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General Electric Co. v. Cooper Hewitt Electric Co., 249 F. 61, 66 (C.C.A. 6); *Century Electric Co. v. Westinghouse E. & Mfg. Co.*, 191 F. 350, 353 (C.C.A. 8); 48 *Corpus Juris*, Sec. 75, p. 74; *Allen Filter Co. v. Star Metal Mfg. Co.*, 40 F. (2d) 252 (C.C.A. 3); *General Electric Co. v. DeForest Radio Co.*, 23 F. (2d) 698 (D.C. Del.); *King v. Anderson*, 90 F. 500, 503-4.

here in suit includes and covers the neutralized products or salts of modified or sulfo-fatty acids (the soaps of such acids) in no manner conflicts with the findings below that the patent does not include or cover common soaps of the type described in the prior water softener patent. The patent itself makes the distinction clear, stating that it is not the intention "to include soaps of the kind mentioned in my U. S. patent 1,223,659" (1/98-100). The argument that the modified fatty acid patent is invalid for double patenting over the water softener patent is predicated on the assertion that in defining a modified fatty acid Barnickel was describing only the sodium oleate specified and claimed in the water softener patent. This is predicated on a false premise. The term modified fatty acid clearly distinguishes from a simple soap such as sodium oleate. In any event the argument does not apply to the sulfo-fatty acid claims. For no one can contend that a simple soap is the soap of a sulfo-fatty acid. In support of their contention defendants cite the decision of the Supreme Court in *Miller v. Eagle Mfg. Co.,* 151 U. S. 186, but quote only a portion of a sentence from that decision. If the sentence is completed the ruling will be found to fully support the findings and conclusions of the master and the court below in this case. The sentence in question concludes as follows: "where the second patent covers matter described in the prior patent essentially distinct and separable from the invention covered thereby, and claims made thereunder, its validity may be sustained." (151 U. S. 186, at 198.)

APPELLANTS' ASSERTION THAT THE PATENT IS NOT INFRINGED.

The chemical, the use of which is found to infringe in this case, is known as Hydrate 488. The production of this type of material for treating oil field emulsions was first undertaken by the defendants in 1927. This was several years after the grant of the patent in suit and many years after Tretolite had been universally adopted throughout the oil industry. The defendant Herbsman admits that he had known of Tretolite before undertaking this business [II. 688]. The case presents a flagrant example of the deliberate appropriation of a patented invention. It is admitted that the production of the infringing chemical was undertaken with the intention and knowledge that it should compete with Tretolite [II. 688]. No claim has been advanced that Hydrate 488 acts in any way different from Tretolite or for any different reason. The materials employed in the manufacture of Hydrate 488 and the method of manufacture are admitted. As described by Herbsman:–

> "Fuming sulfuric acid is let into a mass of castor oil and stirred in the presence of a catalyst. After all the acid is in, the acid mass is stirred for 8 hours. It is then washed with water. The water, after settling, is drawn off. It is then given a second wash with sodium sulfate solution. The aqueous portion is again drawn off, and the supernatant layer is neutralized with aqua ammonia. This resultant product is then diluted with benzol. This is the finnished product known as Hydrate 488."
>
> [II. 633-4.]

This is nothing more than the standard method of manufacturing a sulfo-fatty acid or Turkey red oil. Compare the method described by Hurst & Simmons [Exhibit 62, IV. 193-7]. That the claims of the patent in issue include Hydrate 488 is at once apparent. Hydrate 488 is a specific grade of the very material stated in the patent to be the most practical and satisfactory treating agent discovered by Barnickel (2/18-22). In holding that the use of Hydrate 488 is a clear infringement of the patent in suit the master after describing the materials and method employed in its manufacture and its characteristics as established by the analyses produced in evidence, found:—

> "It follows that Hydrate 488 is a sulfo fatty acid which has been neutralized. Commercially it may be classified as a Turkey red oil. It is a 'modified fatty acid' in the sense that it contains substitution and addition products resulting from the action on ricinoleic acid of a reagent capable of forming such products." [I. 148-49.]

These findings were expressly confirmed by the court in its decision [I. 176] and are supported by the overwhelming evidence. Each of the contentions made in appellants' brief on this subject was fully considered below and determined against appellants. We shall now state the answer contained in the record to each of the contentions on which defendants base their denial of infringement and refer to the evidence relative thereto so far as is practicable within the limits of this brief.

The first proposition advanced by defendants (Brief, pp. 48-50) is that they employ castor oil as a parent material in lieu of a free fatty acid. As to this the master found:— "That castor oil rather than free ricinoleic acid is used

as a parent material is immaterial." [I. 148.] This finding was based on the uncontradicted evidence that the product would be the same whether made from the oil or from the free fatty acid. Castor oil contains a fatty acid (ricinoleic acid) in combined form as a glyceride. The fatty acid radical reacts with sulfuric acid to produce addition and substitution products [I. 314-15; II. 823]. This action occurs whether the parent material contains the fatty acid in combined form (castor oil) or in a free form (ricinoleic acid) [I. 321-22]. The resultant product is a modified fatty acid or a sulfo fatty acid and is the same product in either case. Under these circumstances it is perfectly clear that the manufacture of Hydrate 488 from castor oil as a parent material in no manner avoids the claims in suit of the patent. As found by the master:— "The patent is directed to the use of treating agents of a certain class and it is not limited to agents made by a particular process." [I. 148.] The governing factor in selecting the parent material is price [I. 321] and since castor oil is cheaper than free ricinoleic acid [II. 782] it is ordinarily used. There was nothing original about the employment of castor oil by the defendants for the production of a sulfo-fatty acid or Turkey red oil. Turkey red oils have been made from castor oil for many years [II. 482, III. 1054-5; IV. 133, 185]. The equivalence of a fatty oil and a fatty acid for this purpose has long been known and fully described in the literature. As said in *"The Technology of Fats and Oils,"* by Hefter, 1910 [III. 1060-1]:— ". . . precisely equivalent products are produced from castor oil and from free ricinoleic acid." Similar disclosures are found in *"Textile Soaps & Oils,"* by Hurst, 1921 [III. 1060]; *"Chemistry of the Oil Indus-*

tries," by Southcombe, 1913, p. 89 [III. 1061]; *"The Sulfonation of Fixed Oils,"* by Radcliffe & Medofski, 1918 [III. 1061; Exhibit 58, IV. 133]. The master was clearly correct in holding that the patent here in suit covers the use of specific chemicals for breaking crude oil emulsions and that the method of manufacturing these chemicals is immaterial. The patent was not issued to cover any particular method of manufacturing a sulfo-fatty acid and no method of doing so is described in the patent.

The next contention made by appellants (Brief, pp. 50-52) is the assertion that plaintiffs have not shown that Hydrate 488 contains substitution and addition products of a fatty acid. However this contention is in direct conflict with the finding of the master that Hydrate 488 "contains substitution and addition products resulting from the action on ricinoleic acid of a reagent capable of forming such products" [I. 149]. There is ample evidence to support this finding. Analyses of Hydrate 488 made by plaintiffs were filed in response to defendants' interrogatories. These were accepted and offered in evidence by defendants [II. 581-6]. From these analyses plaintiffs' chemist Monson established that addition and substitution products are present in Hydrate 488 by following the standard and accepted method of noting the reduction in Hydroxyl Number, the reduction in Iodine Number, and the change in Ester Number of the parent material occasioned by the action of the sulfuric acid [I. 381-2, 383-4]. The presence of organically combined sulfur trioxide was further established and shown to demonstrate that addition and substitution products had been formed

[I. 385]. At the hearing before the court defendants attempted to dispute the accuracy of the analytical methods used by plaintiffs' witness which had been accepted by the master and urged that in lieu thereof the court accept defendants' methods. This the court refused to do, saying:— "The evidence tends to establish the reliability of plaintiffs' methods and raises doubt as to the reliability of defendants' procedure." [I. 177.]

Appellants next contend (Brief, pp. 52-53) that plaintiffs have failed to show the presence of sulfo-fatty acid in Hydrate 488. This is answered by the findings below that Hydrate 488 is a sulfo-fatty acid. The master's report contains two findings: *1st,* "The defendants use a sulfo-fatty acid." [I. 146.] And, again: "It follows that Hydrate 488 is a sulfo-fatty acid which has been neutralized." [I. 148]. The court confirmed the master, holding that, "the defendants product, to-wit, Hydrate 488, being a sulfo-fatty acid which has been neutralized;" [I. 176]. These findings are supported by evidence which was not challenged or disputed by appellants. As testified by plaintiffs' chemist Monson:— "Q.—Is Hydrate 488, except for the diluent therein, a sulfo-fatty acid? A.—It is." [I. 394.] The fact that Hydrate 488 is shown to have been produced by the reaction of sulfuric acid on castor oil demonstrates the accuracy of this testimony. The resulting product is by common definition a sulfo-fatty acid. [See the testimony of Dr. Morse, III. 1054-5 and the admission of defendants' chemist Born, III. 837.] The reactions which occur when castor oil is treated with sulfuric acid are complex in nature and typical individual components in the resulting product are illustrated in the

charts, Exhibits 14-23 [IV. 25-43]. The term "sulfo-fatty acid" is used to identify the mixture of materials obtained in this manner. This was admitted by the defendant Herbsman. [II. 677.] It is not necessary to isolate a particular component. However, Monson did so and identified the individual component [II. 472].

There is no support for appellants' contention (Brief, pp. 54-55) that the cancellation of original claim 14 of Barnickel's application constitutes a disclaimer of a sulfonated fatty oil. We have shown above (pp. 48-50) that precisely the same product is produced by the sulfonation of castor oil or its free fatty acid. Castor oil contains a fatty acid (ricinoleic acid) in combined form. The fatty acid is liberated during the washing step in the manufacture of Hydrate 488. This is admitted by the defendant Herbsman:– "Q.—In other words, the free fatty acid is present at that point? A.—It is obtained at that point." [II. 683.] There is nothing in the fact that claim 14 of the original application was cancelled that helps the defendants in this case. Original claim 14 was never rejected. Before any amendment was made by Barnickel in response to the first Patent Office action, the Examiner suggested the inclusion of two additional claims for the purpose of interference. [IV. 335.] These are claims 9 and 10 of the patent calling for the use of a sulfo-fatty acid. The Examiner in declaring one of these interferences stated that original claim 14 was unpatentable over the issue of that interference, which issue is now claim 10 of the patent in suit [IV. 345]. The interferences were decided in favor of Barnickel and a further Patent Office action was entered allowing the two inter-

ference claims and calling for a response to the original Patent Office action [IV. 353]. An amendment was then filed in which for the first time claims were introduced defining the new agent as a modified fatty acid [IV. 355]. The original claims, including claim 14, were canceled by this amendment. Claim 14 was canceled voluntarily because the Examiner had indicated that it was unpatentable over the interference claims. The master disposed of defendants' contention in the original submission of his report as follows:— "Cancellation of the original claim 14 was, in effect, a disclaimer of the products of mineral oils" [I. 142]. In other words, the original claim in calling generically for a "sulfonated oil" thereby included a sulfonated mineral oil. The effect of the cancellation was to exclude mineral oil products but not fatty acid products defined in the other claims. In response to an exception to this finding the master in his final report stated that he had re-examined the file-wrapper and reiterated his finding [I. 152-53]. The finding below is clearly correct. There is no support in the file-wrapper proceedings for the contention that the cancellation of claim 14 creates any estoppel as regards a sulfonated fatty oil of the kind present in Hydrate 488.

There is likewise no support for appellants' contention (Brief, pp. 55-56) that the file-wrapper proceedings estop Barnickel from asserting that the use of a salt or neutralized product such as Hydrate 488 is an infringement of the patent claims in suit. The patent as granted by the Patent Office expressly includes the modified fatty

acids and sulfo-fatty acids either in neutralized or un-neutralized form. In defining "a modified fatty acid", referred to in claims 1, 2, 4, 7 and 8, the patent specification expressly includes an ester or salt (1/62-63). With reference to the "sulfo-fatty acids" referred to in claims 9 and 10 the specification expressly includes "the salts of such substances" (2/22). A salt is a neutralized product. It is elementary chemical knowledge that any acid is neutralized by reaction with a base. If the base is an alcohol (*i. e.,* organic in nature) an ester is produced. If the base is inorganic in nature a salt is obtained. Hydrate 488 is neutralized with ammonia (an inorganic base) and is a salt exactly as called for by the patent. As found by the master:– "When neutralized it is correct to classify them as salts of sulfo-fatty acids" [I. 141], and as said by the court, "a neutralized product is a salt" [I. 175]. An examination of the file-wrapper will reveal that nothing is there contained having the effect of excluding neutralized products from the scope of the issued claims. The application as originally filed by Barnickel included specifically salts [IV. 313, line 23] and esters [*Id.* line 32], and claim 13 of the original application specifically mentioned both salts and esters [IV. 329]. Following the favorable outcome of the interferences the specification was voluntarily re-written and new claims substituted for the original claims. It was expressly stated that this was solely for the purpose of "more clearly defining the invention" and that the re-written specification and claims

include the "neutral products and salts" of the fatty acids [IV. 367-69]. The re-written specification referred to "neutral products and salts" [IV. 359-61] and claims 6, 9 and 10 as re-written referred to "a salt or neutralized product" [IV. 365-67]. In the Patent Office action dated May 22, 1923, the Examiner stated:– "It is not seen what is meant by 'neutral products' and 'neutralized products'" [IV. 373] but there was no objection to the inclusion of salts. On no basis can such a rejection be taken to indicate any requirement that a salt be excluded from the patent. Quite the contrary is manifest. The Examiner was at a loss to understand what constituted a neutralized product as distinguished from a salt. That was the sole basis of the objection. In reply to the objection, by the amendment filed June 26, 1923 the words "salts and esters" [IV. 381, lines 12-13] were substituted for the words "neutralized products and salts" at line 30 of page 3 of the previous amendment, and the words "neutralized products" preceding the word "salts" were canceled from line 3, page 4 of the preceding amendment. The term "modified fatty acid as herein defined" was substituted in certain of the claims. The effect of these corrections was merely to overcome the Examiner's objection that the reference to neutralized products in opposition to salts was not intelligible, which objection was not surprising in view of the fact that a salt is a neutralized product. There was never any objection by the Examiner to the inclusion in the patent of the product in the form of a salt

and no claim to the use of a product in that form was ever canceled because of any such rejection. Under such circumstances the master and court below were obviously correct in finding that no element of estoppel can be found in the file-wrapper having the effect of excluding salts such as Hydrate 488 from the issued claims. As found by the master:– "No elements of estoppel can be found" [I. 152-53] for the reason that, as stated by the court, "although the inventor eliminated the words 'neutralized product' from said patent, this evidently was done solely to avoid a duplication of terms since he retained the synonymous expression 'ester or salt' "; [I. 175].*

The Court will find that every contention appearing in appellants' brief upon which they base their denial that the use of Hydrate 488 is an infringement of the patent claims in suit is disposed of fully by the specific findings entered by the master and court below. The record shows in each instance that these findings are clearly correct. This is a bald case of outright infringement. The chemical used by the defendants is exactly the material specifically mentioned in the patent in suit (2/18-22) and there stated to be "the most practical and satisfactory treating agents" that Barnickel had found.

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*Appellants' brief (pp. 58-59) refers to the cancellation of original claim 6. This does not form the basis of any estoppel as this claim was cancelled in view of the Patent Office examiner's objection as to form, not substance [IV. 373-75]. Claims 9 and 10, included with this rejection of claim 6 because of indefiniteness, were restated to avoid this objection and appear as claims 7 and 8 of the patent.

APPELLANTS' MISCONCEPTION OF THE MEANING OF THE SUPREME COURT'S DECISIONS IN THE CARBICE AND BARBER CASES.

The decisions of the Supreme Court in *Carbice Corp. v. American Patents Development Corp.*, 283 U. S. 27, 75 L. ed. 819, and *Leitch Mfg. Co., Inc. v. The Barber Co., Inc.*, 302 U. S. 458, 82 L. ed. 371, have no application to the instant case. These cases were considered by the court below, following the decision of the court on the merits, at a hearing upon the objections to the decree filed by defendants and a petition of defendants to reopen the case for further argument. As found by the court:–

> "* * * under the record presented herein this cause is not governed by any of the cases cited,"
> [I. 195].

These cases do not support the contention which the defendants attempt to base upon them (Brief, pp. 65-79). They go no further than ruling that a patent owner may not recover for contributory infringement if the patent owner is unlawfully using his patent to restrain trade in an unpatented staple article of commerce. They do not hold (as urged by defendants) that the sale of a common article of commerce for use in an infringing process is not contributory infringement. They have no application when the patent owner is making no illegal use of the patented invention. The court below has properly found that these cases do not apply here. There is no evidence in the record whatsoever to show that the patent in suit has been employed by plaintiffs in the illegal manner condemned in the two cases cited and in fact plaintiffs do not do so.

In the *Carbice* case the Court stated that the owner of a combination or process patent may not exact as a condition for a license to use his invention that the unpatented materials employed therein shall be purchased only from the patent owner and that if such a condition is exacted relief will be denied the patent owner against one who supplies such unpatented materials. The case made no change in the established law of contributory infringement. The Court expressly left that law undisturbed, saying:–

> "The case at bar is wholly unlike Leeds & C. Co. v. Victor Talking Machine Co., 213 U. S. 325, 333, 53 L. Ed. 816, 819, 29 Sup. Ct. 503, on which plaintiffs rely. That was an ordinary case of contributory infringement."*

Relief was denied not because the defendant was not guilty of contributory infringement but expressly because it was shown that the patent owner was denying the use of the patented invention to others except upon condition that the unpatented materials employed with the invention be purchased from the patent owner.–

> "Relief is denied because the Dry-Ice Corporation is attempting, without sanction of law, to employ the patent to secure a limited monopoly of unpatented material used in applying the invention."

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*The case at bar, as to defendants Research Products Co., Ltd., and Abraham M. Herbsman, is an ordinary case of contributory infringement. It is well settled that the unauthorized sale of materials for the purpose of using them in practicing a patented process is contributory infringement. (48 *Corpus Juris,* 323; *Solva Waterproof Glue Co v. Perkins Glue Co.,* 251 F. 64 (C.C.A. 7).)

The existence of the latter factual situation is essential for the application of this rule.*

In the *Barber* case the Court reiterated the rule that had been established in the *Carbice* case and applied that rule to a patent owner which adopted a method of doing business which was the equivalent of granting a written license upon condition that the patented invention might be practised only when the unpatented material employed therewith was purchased from the patent owner. The Court held that the fact that the Barber Company had not entered into any contract or agreement requiring the user of the patented invention to purchase the unpatented materials from it was a distinction without legal significance in view of the method by which the Barber Company conducted its business. The Court noted that the Barber Company did not itself engage in road-building and did not grant licenses to others upon a reasonable royalty basis. The *Barber* case adds nothing to the rule established in the *Carbice* case but merely applies that rule to another and equivalent method of accomplishing the same illegal result. In both cases the application of the rule is dependent upon the unauthorized illegal use of the patent to restrain trade in the unpatented materials, "the nature of the device by which the owner of the patent seeks to effect such unauthorized extension of the monopoly" being immaterial.

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*This is the view taken of the *Carbice* and *Barber* cases by Judge Wilkerson in *American Lecithin Co. v. Warfield Co.* In his opinion on the merits in that case (23 Fed. Supp. 326), he held that the same unlawful use of a patent is as much a bar to a suit for direct infringement as it is to a suit for contributory infringement. In his supplemental opinion on the entry of the decree (38 USPQ 34), he held that the bar does not exist when and if the patent owner discontinues the illegal use of the patent.

In the case at bar there is no showing that the plaintiffs employ any method of doing business which comes within the condemnation of the *Carbice* and *Barber* decisions and they do not do so. By reference to Mr. Justice Brandeis' decision in the *Carbice* case it will be found that the requirements imposed by the Supreme Court in that case will be met if the patent owner offers the use of his invention to the public upon a reasonable royalty basis and unconditioned as to purchasing the unpatented materials used in the invention from the patent owner. This is made apparent by reference to the rule in England, which Mr. Justice Brandeis cites as evidencing the same law as the Court finds exists here. To show the English law Mr. Justice Brandeis referred to the Patents & Designs Act of 1907, 7 Edw. VII, chap. 29, Sec. 38, as amended by (1919) 9 & 10 Geo. V, chap. 80, Sec. 20, Sched. 38. This act reads as follows:–

> "38. (1) It shall not be lawful in any contract made after the passing of this Act in relation to the sale or lease of, or license to use or work, any article or process protected by a patent to insert a condition the effect of which will be—
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> * * * * * * * *
>
> "(b) to require the purchaser, lessee, or licensee to acquire from the seller, lessor, licensor, or his nominees, any article or class of articles not protected by the patent;
>
> and any such condition shall be null and void; as being in restraint of trade and contrary to public policy:
>
> "Provided that this subsection shall not apply if—
>
> "(i) the seller, lessor, or licensor proves that at the time the contract was entered into the purchaser, lessee, or licensee had the option of purchasing the article or obtaining a lease or license on reasonable terms, without such conditions as aforesaid; and

"(ii) the contract entitles the purchaser, lessee, or licensee to relieve himself of his liability to observe any such condition on giving the other party three months' notice in writing and on payment in compensation for such relief in the case of a purchase of such sum, or in the case of a lease or license of such rent or royalty for the residue of the terms of the contract, as may be fixed by an arbitrator appointed by the Board of Trade."

In other words the owner of a patented invention is not within the rule of the *Carbice* and *Barber* cases if he offers to license the unconditioned use of his unpatented invention on reasonable terms. As said by Mr. Justice Brandeis in the *Carbice* case:– "It may charge a royalty or license fee." If the patent owner does so he is then obviously not employing the patent to secure a monopoly of the unpatented material because he is permitting the use of his invention with the unpatented material purchased in the open market. It has never been held that it is unlawful for a patent owner to extend the right to employ his patented invention with the sale of material for use therein, provided he gives the public the option of securing the material elsewhere and paying a reasonable royalty. If the Barber Company had offered this option then manifestly relief would have been accorded the Barber Company against the defendant who was a contributory infringer.

There is nothing in the record in this case as to whether or not plaintiffs offer to grant unrestricted licenses on a reasonable royalty basis for the use of the invention of the patent in suit. If the opportunity had been afforded

to plaintiffs the affirmative would have been shown. Plaintiffs have extended and do extend a published written offer to the public whereby any member of the public may secure an unrestricted license to use the patented invention on a reasonable royalty basis. This is precisely the option contemplated by the English Statute. The fact that plaintiffs extend this option was not established in the evidence in this case because at the trial no contention was made that plaintiffs are guilty of any illegal use of the patent in suit. Such a defense had been pleaded in the answer but the defense was abandoned at the trial by defendants. (This is conceded in appellants' brief, pp. 65-66.) The matter was not raised before the master and no exception was taken to the master's report on this subject.* We do not understand how defendants, after expressly abandoning the alleged defense at trial, can now inject the defense into this case. Certainly it was within the discretion of the trial court to deny defendants' petition to reopen. In any event the record does not support the defense. In view of the situation we feel justified in advising this Court that if the defense had not been abandoned before the master and evidence had been taken thereon, plaintiffs would have shown that their use of the patent in suit is entirely justified and in full accord with the rulings of the Supreme Court in the cases above mentioned. Certainly in view of the situation here the District Court was entirely correct in holding that:– "Under the record presented herein this cause is not governed by any of the cases cited" [I. 195].

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*The review of cases determined by a master's report is limited in this Court to the issues raised by the exceptions taken to the master's report. (*Riverside Heights Orange Growers Ass'n v. Stebler*, 240 F. 703.)

CONCLUSION.

Every contention made by appellants on this appeal is met by the findings of the master and court below. These findings are fully supported by the record in each instance. There is no support for the defendants' attack upon the validity of the patent in suit. Infringement is clear. The effect of the decree in this case is to protect the widespread business which plaintiffs have established under the patent in suit for the brief remainder of the life of the patent. The Court should have no hesitation in doing this. The patented invention is one of unusual merit and has been of great benefit to the oil industry. The case presents every reason for adhering to the constitutional policy of rewarding a meritorious patented invention by securing the exclusive use of that invention for the term of the patent. We feel that on the facts and the law the decree below was clearly right.

Respectfully submitted,

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